

WANNABE A

Diver



BE WHAT YOU
WANT TO BE

**Just add
your photo!**



Place a photograph of yourself, a relation or a friend in the panel below and on the last page of this book. Centre the face in the 'window' and stick in place with a low-tack or reusable adhesive so that you can remove the photographs when you wish. Choose photographs that are the best size for the window.



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Wannabe...

A Diver

Neil Morris



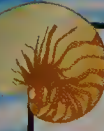
Armbands and water wings can help when you are learning to swim. They simply help you to float, while you get used to the water and use your arms and legs to move around. Sometimes plastic floats are used too.

Moving your arms in the right way is vital to good swimming technique. When you dive underwater, your legs become much more important.

CAN YOU SWIM?

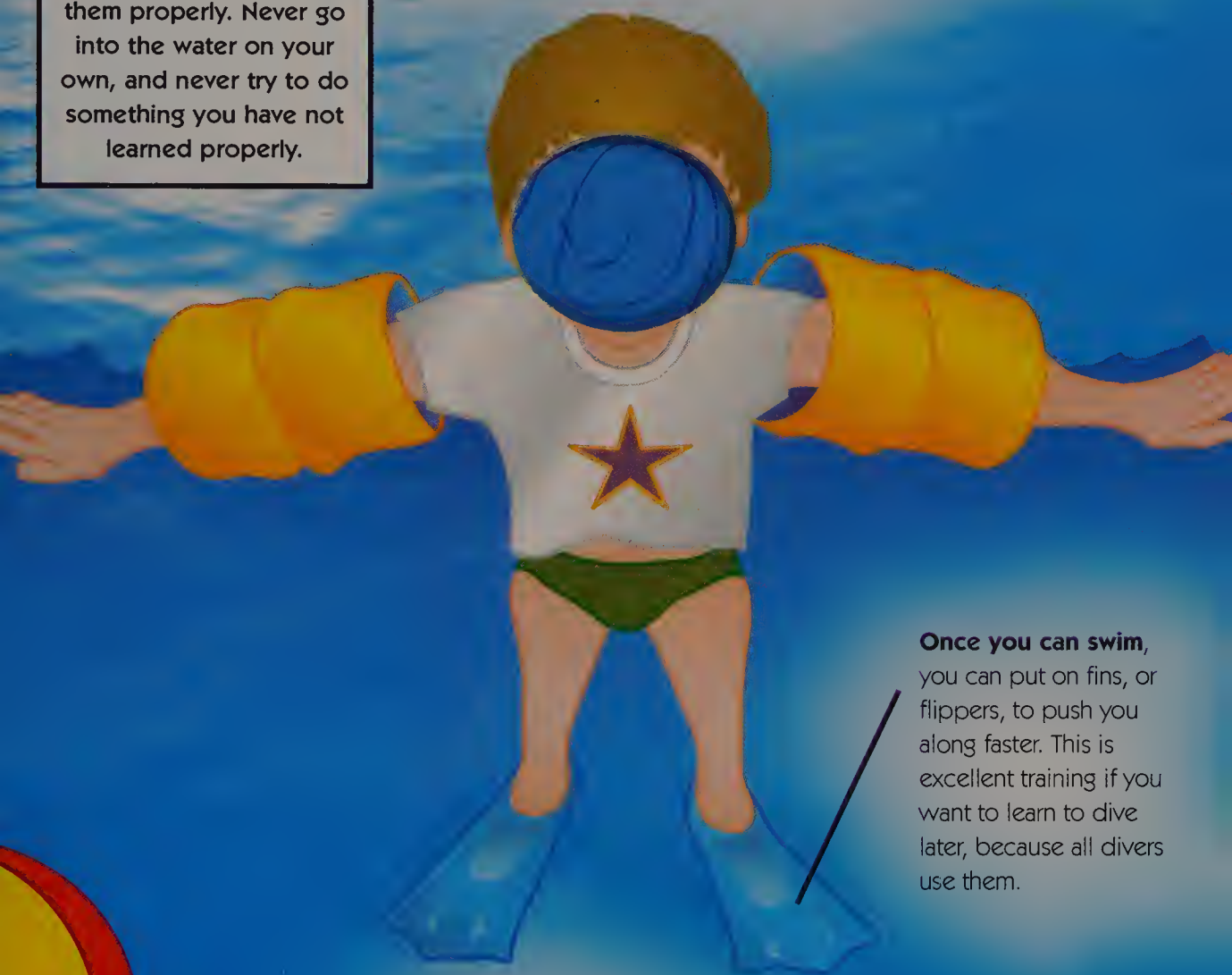
Diving is really swimming underwater, so anyone who wants to become a diver has to be a good swimmer. It's important to learn to swim properly and safely. The best place both to learn and to practise your swimming is in a pool, where there are others to teach, watch and help you. Swimming pools usually run special courses for children and young people.

The first thing for beginners to learn is how to float. Then they can stay on top of the water easily, without getting tired. Beginners also learn to tread water, which is like walking in the water, but without getting anywhere! Then they can learn proper swimming strokes, such as breaststroke and front crawl. You must be completely confident in the water before you can start to dive.

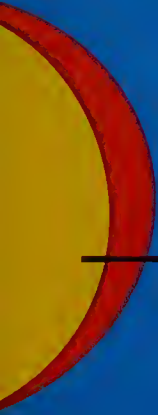


FACT BOX

Always remember that swimming and diving can be very dangerous if you don't do them properly. Never go into the water on your own, and never try to do something you have not learned properly.



Once you can swim, you can put on fins, or flippers, to push you along faster. This is excellent training if you want to learn to dive later, because all divers use them.



Beach balls and other toys

can be great fun in the water. Until you are a very good swimmer, it's best to stay in the shallow end of the pool for fun and games. Then you won't be out of your depth if you slip.

DIVING FOR PEARLS

Thousands of years ago people started diving for shells. Shellfish were good to eat, and their beautiful shells could be used for beads and even as money. Then daring divers started collecting oysters – but not to eat. They wanted the valuable pearls that grow inside some oyster shells. They dived down to the bottom by holding their breath, for minutes at a time.

A snorkel is useful when you are on the surface or just under the water, it is a plastic tube with a mouthpiece, that allows you to breathe when the open end is in the air. In ancient times, divers may have used hollow reeds in the same way.

The giant clam is the largest of all shellfish. It can grow up to 1.5 metres across and weigh over 250 kilograms. If a clam senses there is a diver nearby, it will usually close its shell at once.



Pearl divers train themselves

to be able to hold their breath for two or three minutes under water. Some skilled divers can go as deep as 30 metres.



Pearl divers need a knife to cut away oysters, which attach themselves to rocks or the sea bed. Divers try to cut away as many oysters as they can in a single dive.

SCUBA DIVING

In 1943 two Frenchmen, Jacques-Yves Cousteau and Émile Gagnan, invented a device that allowed divers to breathe underwater. This was the aqualung system, which included an oxygen cylinder strapped to the diver's back. Now people could go scuba diving: the word scuba stands for self-contained underwater breathing apparatus. Divers could now go to greater depths and stay down for much longer.

Scuba divers wear a wet suit.

This keeps the body warm, as well as giving some protection against stings and scrapes. In very cold conditions, divers can wear a completely waterproof 'dry suit'.

Underwater watches are marked with the depth of water that they can withstand. It is important for divers to know how long they have been underwater.

A scuba cylinder is a metal tank containing compressed air. A regulator attached to the cylinder allows the diver to breathe normally, through a mouthpiece. The cylinder is often carried on the back of a jacket, which can itself be inflated in an emergency.

A diving knife is needed in case of an emergency. It is especially useful if a diver gets caught up in seaweed or fishing lines.



Breath-hold divers usually strap a snorkel to their mask, so that they can breathe at the surface and keep their head underwater at the same time. Most scuba divers and skin divers simply want to explore the beautiful undersea world of fish, rocks and corals.

All divers must do a course of training in a swimming pool. Instructors teach them basic diving techniques and safety rules. Many courses offer a certificate, which may need to be shown at diving centres around the world.

FACT BOX

Most divers wear an instrument panel on their suit with three dials. A depth gauge tells them how far below the surface they are. A pressure gauge gives the water pressure at that depth. And a compass helps them find their way.

Harpoons are sometimes used to spear larger fish. They are extremely dangerous, and should only be used by experienced fishermen.

A face mask keeps water out and so allows a diver to see well underwater. It usually covers the nose as well.

A weighted belt makes it much easier to dive. In ancient times, divers used to tie a heavy rock around their ankle.

FACT BOX

Divers never go down alone. They always dive with a friend, or 'buddy'. Two divers together can check each other's equipment and help one another if they run into problems.




SUNKEN TREASURE

There is a lot of history to be discovered on the ocean floor. This is because most of the world's trade was once carried on in ships, and sometimes ships sink! Treasure can stay inside a shipwreck for centuries, and sometimes the ships themselves are valuable to historians.



FACT BOX

Many Roman merchant ships sank in the Mediterranean Sea. One went down with 10,000 wine jars and bowls, and many of them were still unbroken when divers discovered them.

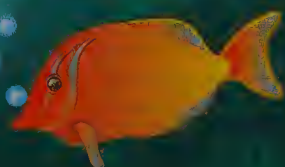


In the 16th century, Spanish galleons sailed to America in search of gold. Pirates hid around the Caribbean islands to rob the galleons of their treasure on the way back. Some of the gold and silver made its way to the bottom of the sea, and may still be waiting to be discovered.



Scuba equipment allows divers great freedom of movement. They can easily swim in and out of shipwrecked hulls. Professional scuba divers explore at depths of over 100 metres. But this can be dangerous, because the deeper the water, the more it presses down on you. Divers must also return to the surface slowly. Otherwise they may suffer from a painful illness called the bends, or decompression sickness.

Divers must always be very careful when they swim into an enclosed space, in case they get trapped. This is another good reason to dive in pairs.



DANGER!

We have learned a lot about the way in which fish and other sea creatures behave by watching and photographing them in their own natural habitat – the ocean. Some scientists train as divers in order to be able to do this themselves, but it can be dangerous work.

Underwater photographers go down in a steel cage to capture sharks on film. They sometimes carry special electric probes, which can be useful if the sharks become too interested. Sharks do not normally attack people.

A great white shark's teeth are up to 6 centimetres long, with razor-sharp edges. Sharks have several rows of teeth. When one row wears out, another moves forward to take its place.



Sharks are not the only sea creatures that can be dangerous to people, and divers need to be aware of what they must look out for and avoid. Rays are large, flat relatives of the shark: electric rays can give a nasty shock, while stingrays have whiplike tails and a poisonous spine. In Australia, divers have to be very careful of the box jellyfish, or sea wasp, whose sting can be deadly.

FACT BOX

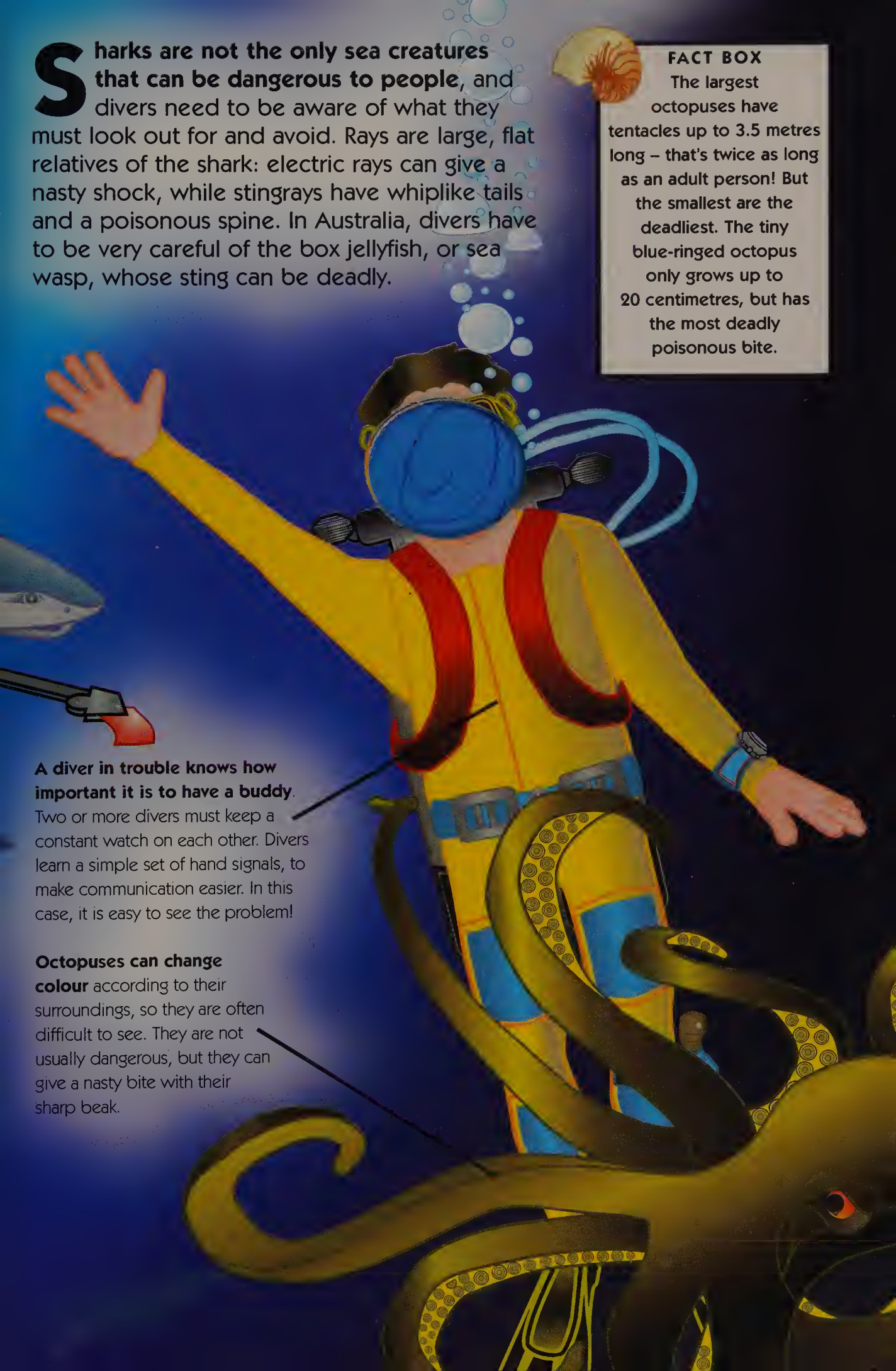
The largest octopuses have tentacles up to 3.5 metres long – that's twice as long as an adult person! But the smallest are the deadliest. The tiny blue-ringed octopus only grows up to 20 centimetres, but has the most deadly poisonous bite.

A diver in trouble knows how important it is to have a buddy.

Two or more divers must keep a constant watch on each other. Divers learn a simple set of hand signals, to make communication easier. In this case, it is easy to see the problem!

Octopuses can change

colour according to their surroundings, so they are often difficult to see. They are not usually dangerous, but they can give a nasty bite with their sharp beak.



STUDYING THE SEAS

By studying the lives of sea creatures, we can find ways to make sure that we look after them and the world's oceans.

Unfortunately people have been using the oceans as an easy place to dump rubbish. Industrial pollution has made the situation worse. Scientists help by pointing out these problems and suggesting ways to look after the oceans.

FACT BOX

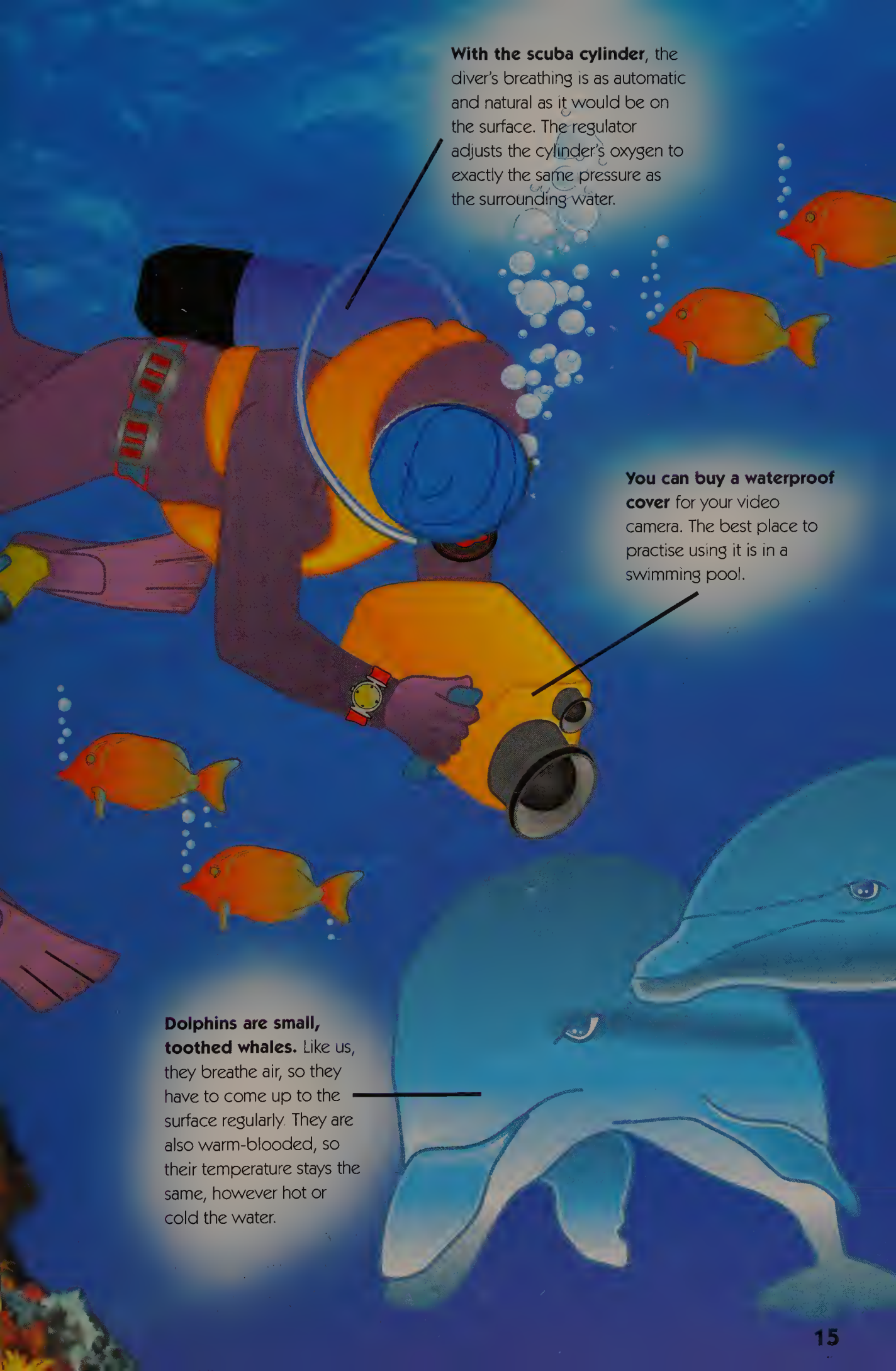
Some parts of the world are especially good for underwater photography. At the Great Barrier Reef, off the Australian coast, there are over 1400 species of fish, as well as squid, octopus and thousands of different kinds of shellfish, including giant clams. The reef itself is made up of 400 different kinds of coral.

Underwater cameras have special watertight seals. If you want to practise taking photos in the water, you can buy disposable underwater cameras too.

The deeper you dive, the less sunlight gets through the water. A special flash unit is needed to give light and bring out colours.

FACT BOX

Underwater photography takes experience and lots of patience. The experts know where they are likely to find the subjects they want to film. But they might have to wait a long time before they get just the shot they want.



With the **scuba cylinder**, the diver's breathing is as automatic and natural as it would be on the surface. The regulator adjusts the cylinder's oxygen to exactly the same pressure as the surrounding water.

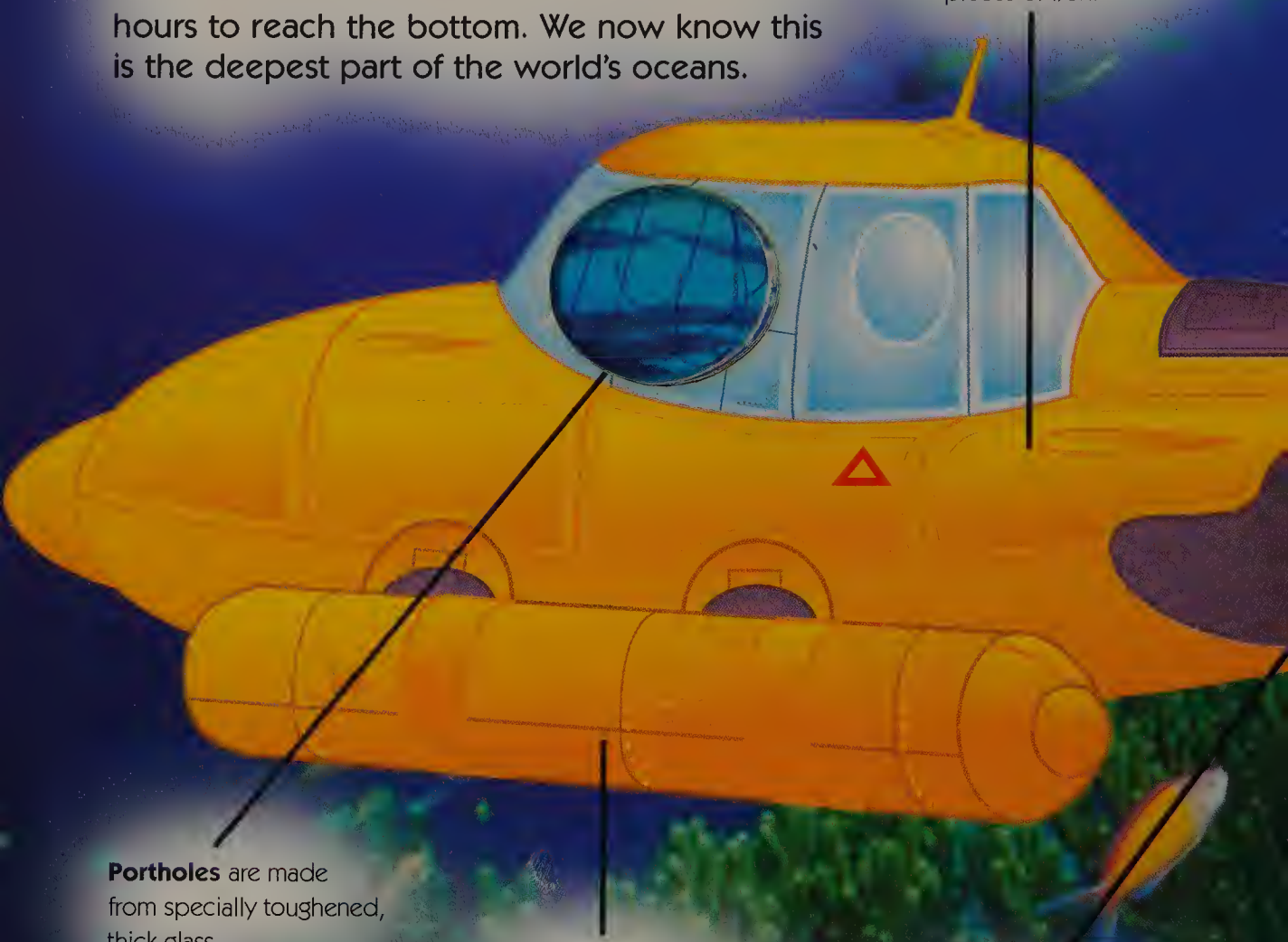
You can buy a **waterproof cover** for your video camera. The best place to practise using it is in a swimming pool.

Dolphins are small, toothed whales. Like us, they breathe air, so they have to come up to the surface regularly. They are also warm-blooded, so their temperature stays the same, however hot or cold the water.

DEEP-SEA DIVING

Divers use small submarines called **submersibles** to explore deep water. The deepest dive ever was made in 1960 in a submersible called Trieste. Two divers took it almost 11 kilometres down into the Marianas Trench in the Pacific Ocean. It took them five hours to reach the bottom. We now know this is the deepest part of the world's oceans.

To go back up to the **surface**, the craft is made lighter by discarding small pieces of iron.



Portholes are made from specially toughened, thick glass.

Flotation tanks are emptied of air to make the submersible sink. For going down to great depths, they are filled with petrol instead, since air-filled tanks would be crushed by great pressure. Trieste carried 91,000 litres of petrol.

The submersible's propellers are powered by electric batteries. Most submersibles travel through the water quite slowly. They are not very manoeuvrable, so they have to be steered very carefully.

FACT BOX

The first recorded attempt to dive underwater was made by **Alexander the Great**, in the 4th century bc. He was lowered into the sea in a barrel with glass windows. Later submarines were wooden boats covered with greased leather.

FACT BOX

Early diving suits, invented in 1837 by the German engineer Augustus Siebe, had a watertight copper helmet attached to a canvas outfit. This design stayed more or less the same for over a hundred years.

In deep parts of the ocean, the water presses down so hard that it would crush an unprotected diver. So for great depths, divers wear special metal suits, sometimes called articulated armour. They get air through a hose connected to pumps on a boat. Divers breathing air at great depths sometimes suffer a drugged effect called 'raptures of the deep', or nitrogen narcosis. To avoid this, some of the nitrogen gas in the air is replaced by helium.



Deep-sea divers wear heavy, lead-soled boots, to keep them the right way up and make walking easier.

A valve regulates the supply of air.

Other controls allow two-way communication with the surface ship.

WORKING UNDERWATER

Divers can do many useful jobs. They are needed by the police and the navy to explore underwater. Shipbuilders and shipping lines employ divers to inspect and repair ships' propellers, rudders and hulls beneath the surface. Engineers need divers to build and join parts of bridges, dams and oil rigs.



FACT BOX

The high-pressure water jet is another important tool for divers.

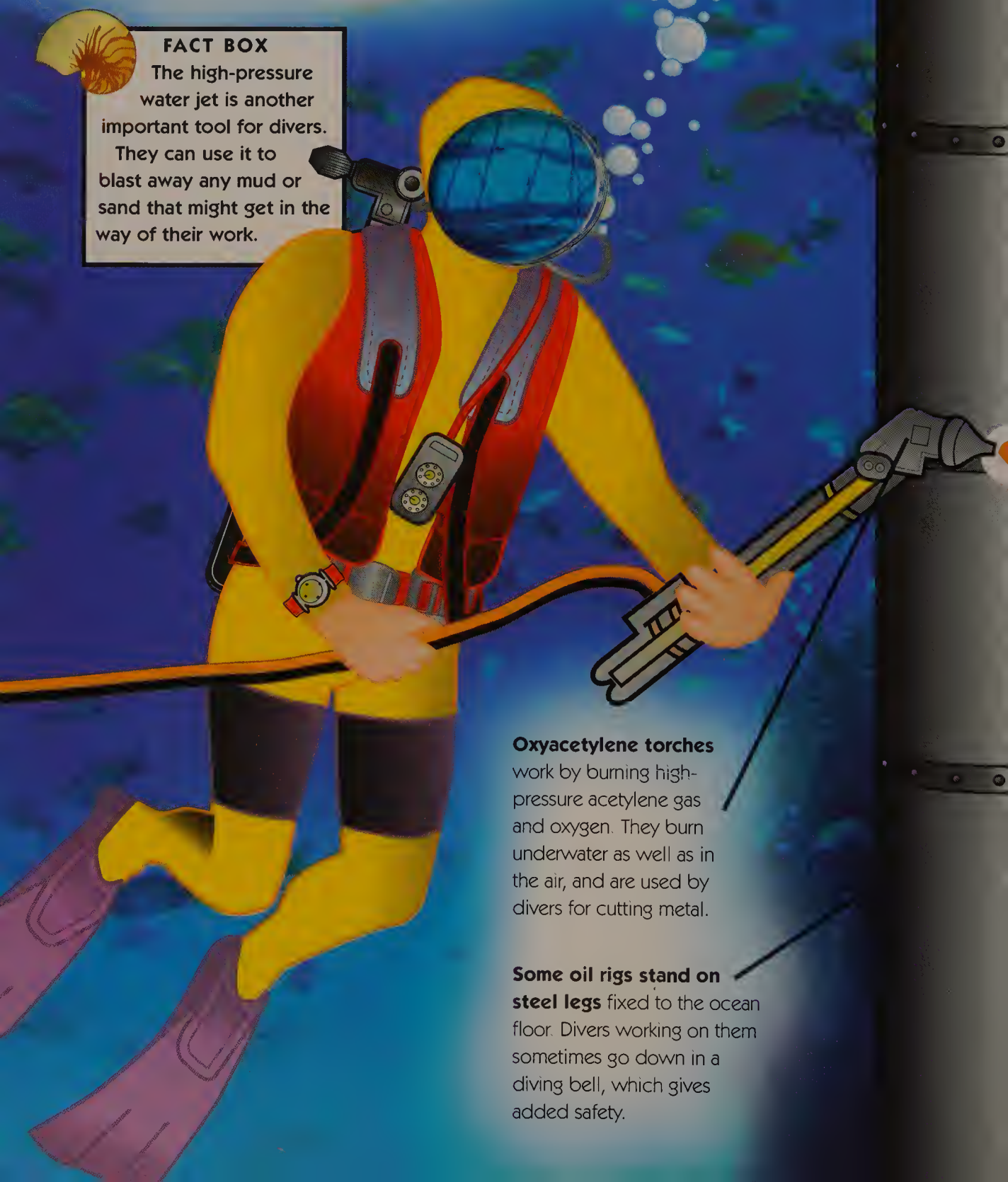
They can use it to blast away any mud or sand that might get in the way of their work.


Oxyacetylene torches

work by burning high-pressure acetylene gas and oxygen. They burn underwater as well as in the air, and are used by divers for cutting metal.

Some oil rigs stand on

steel legs fixed to the ocean floor. Divers working on them sometimes go down in a diving bell, which gives added safety.



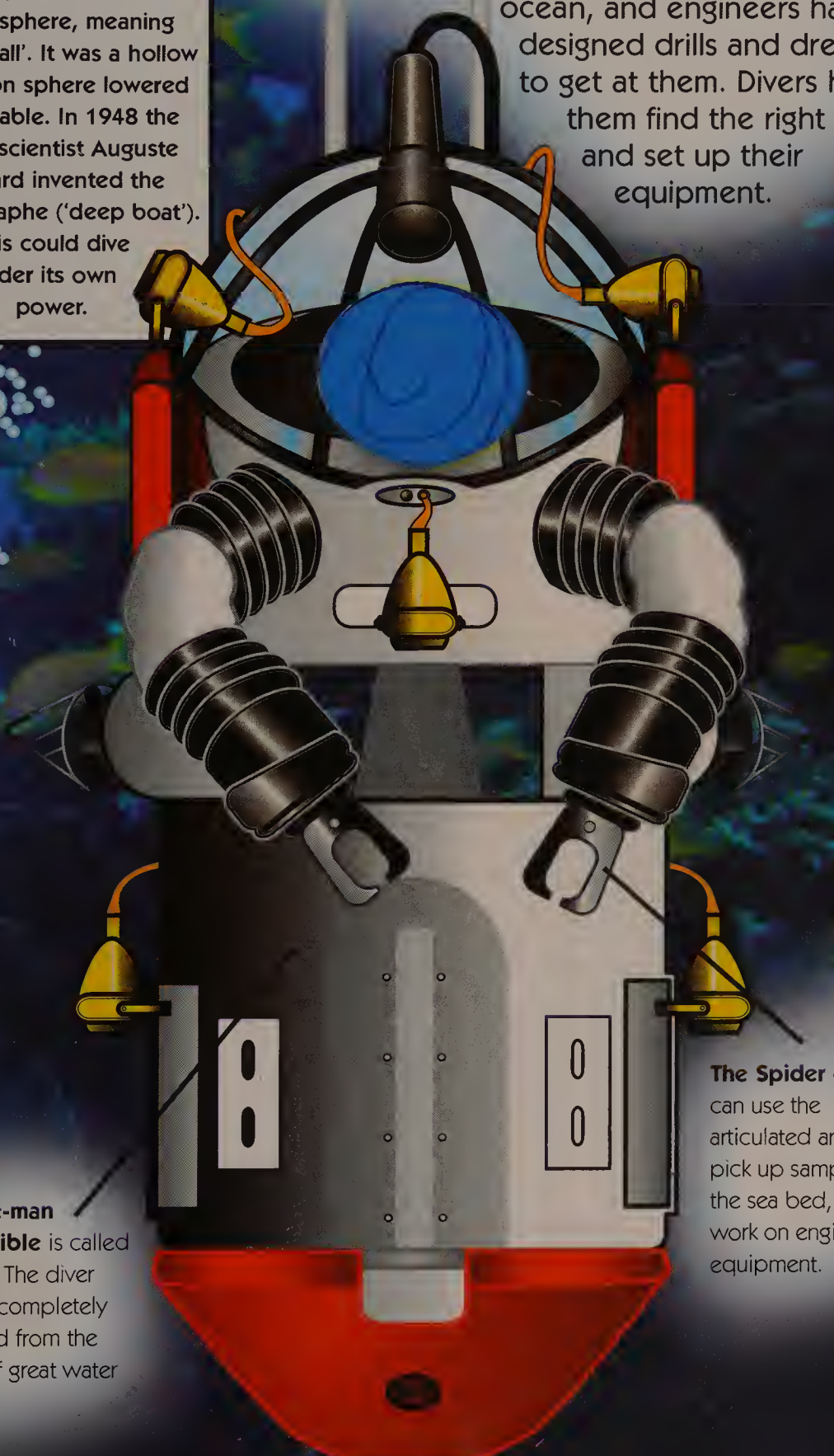


FACT BOX

The earliest submersible was built in 1930 by the Americans Otis Barton and William Beebe, who called it a bathysphere, meaning 'deep ball'. It was a hollow cast-iron sphere lowered by a cable. In 1948 the Swiss scientist Auguste Piccard invented the bathyscaphe ('deep boat').

This could dive under its own power.

New diving equipment is being invented all the time. Small, one-man submersibles are used for exploration and for the scientific study of the ocean floor. There are huge deposits of minerals at the bottom of the ocean, and engineers have designed drills and dredges to get at them. Divers help them find the right places and set up their equipment.



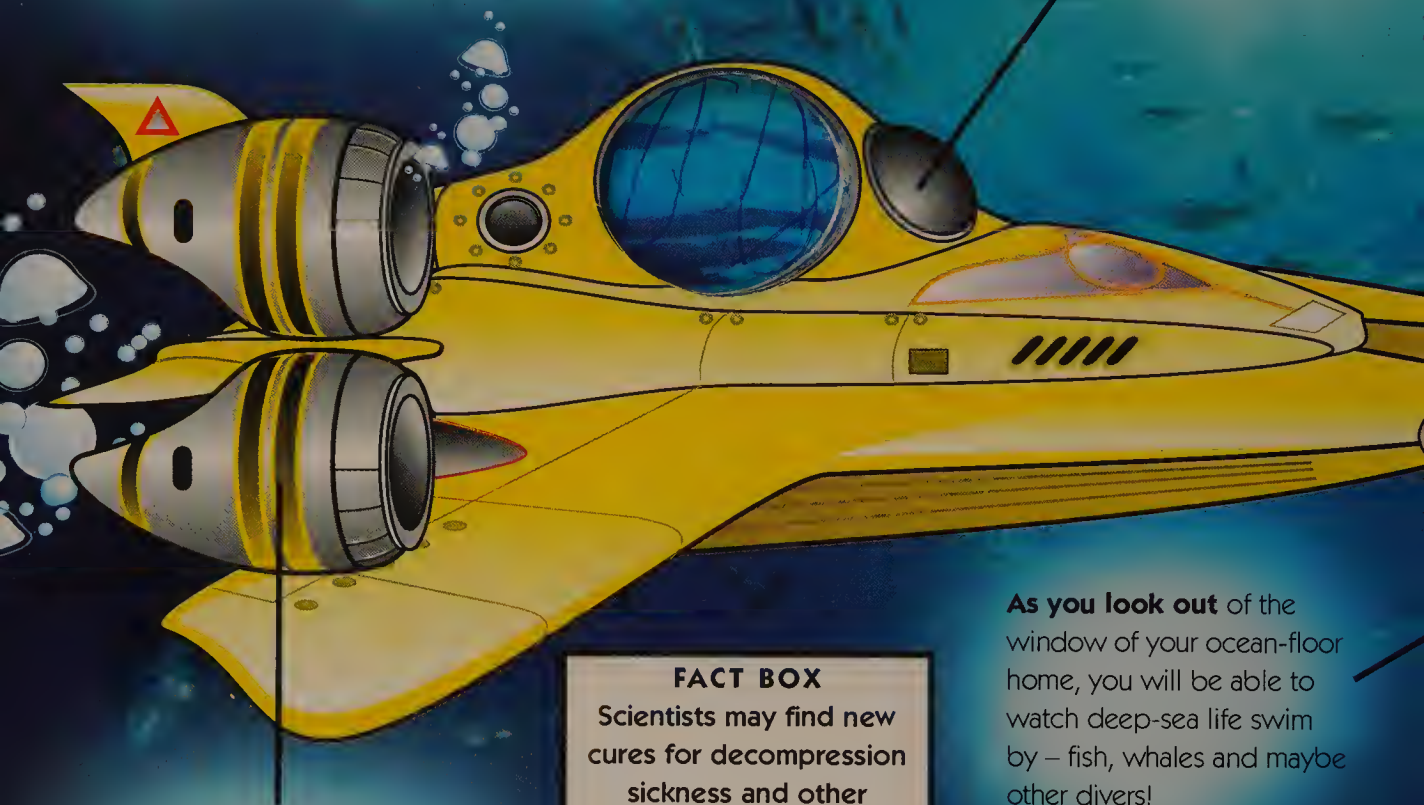
This one-man submersible is called a Spider. The diver inside is completely protected from the effects of great water pressure.

The Spider diver can use the articulated arms to pick up samples from the sea bed, or to work on engineering equipment.

AQUANAUTS OF THE FUTURE

Twenty years after he invented the aqualung, Jacques-Yves Cousteau decided to see what it would be like to live and work in an underwater base. In the 1960s, Cousteau and his team of divers built Conshelf Stations on the sea bed, which they visited in his Diving Saucer submersible. Aquanauts lived in Conshelf II for up to a month.

How would you like to spend most of your life beneath the ocean? That's what future aquanauts might do!



We may discover new ways to power submersibles, making them more manoeuvrable.

FACT BOX
Scientists may find new cures for decompression sickness and other problems of water pressure. Then divers will be able to pilot submersibles to and from ocean-floor bases quickly and safely.

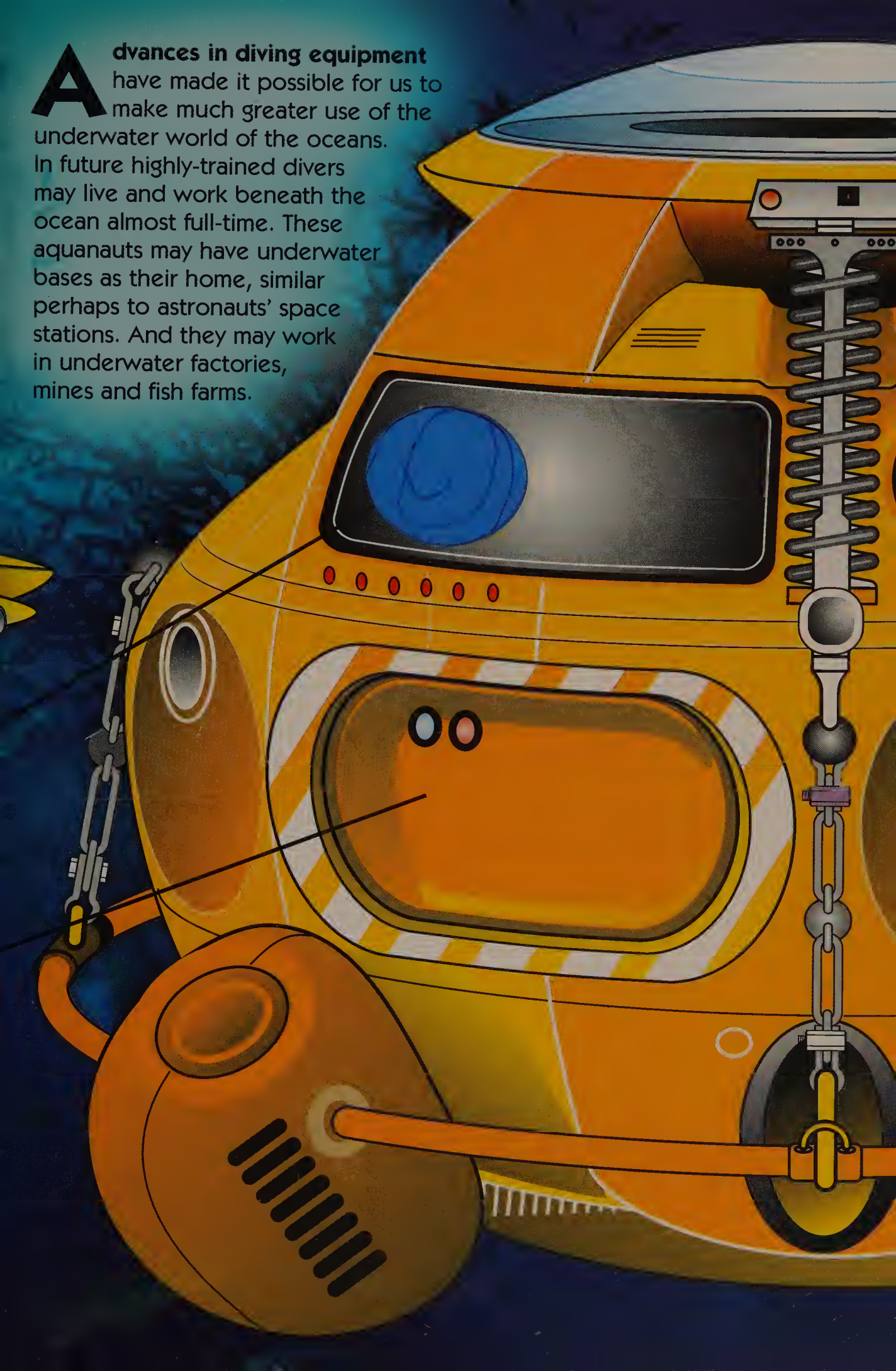
As you look out of the window of your ocean-floor home, you will be able to watch deep-sea life swim by – fish, whales and maybe other divers!



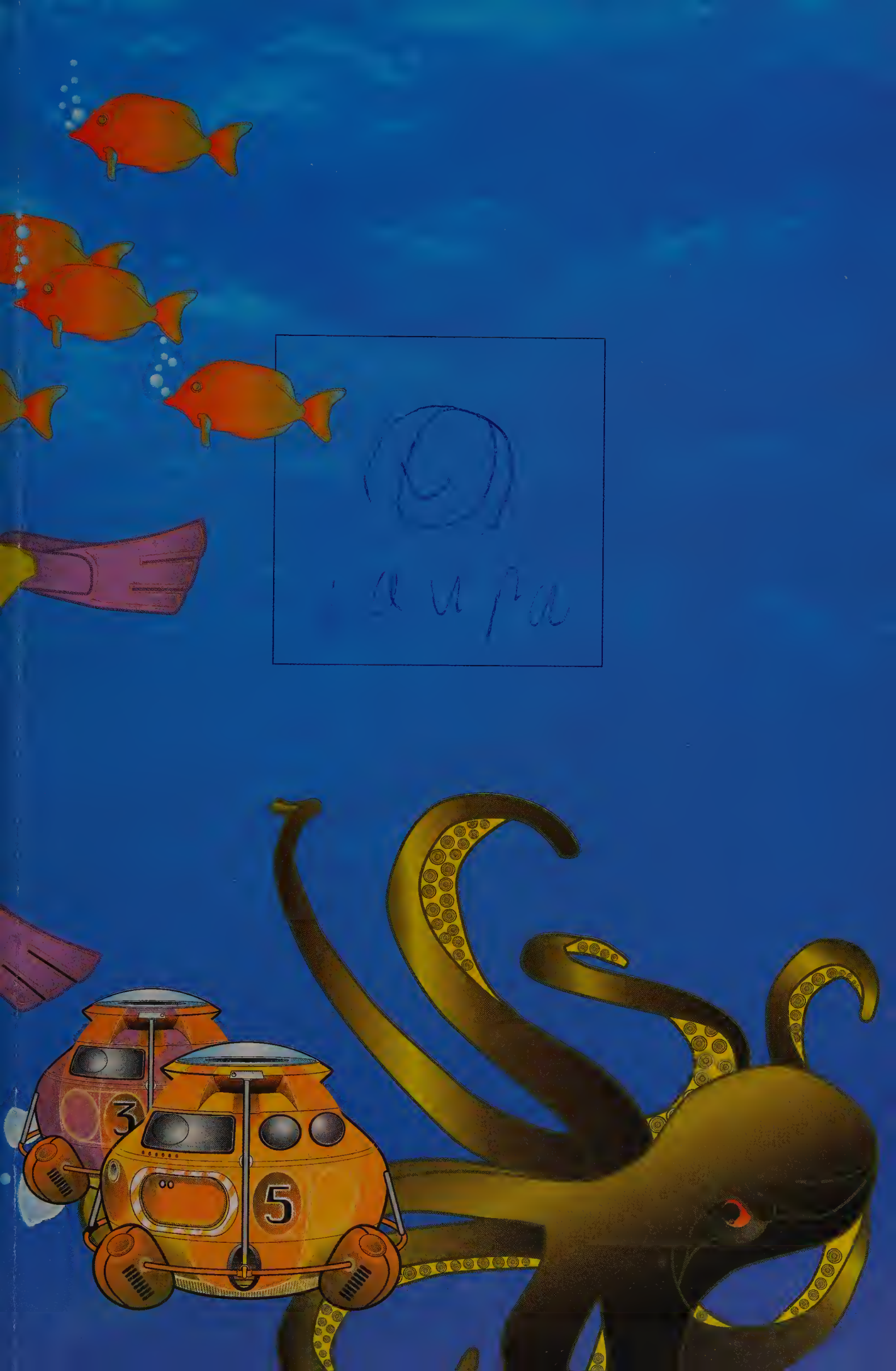
When a submersible docks at the deep-sea base, aquanauts will transfer from the craft through a sealed hatch.

Deep-sea cabins may be supplied with air, so that aquanauts can live and work in them without diving suits.


Advances in diving equipment have made it possible for us to make much greater use of the underwater world of the oceans. In future highly-trained divers may live and work beneath the ocean almost full-time. These aquanauts may have underwater bases as their home, similar perhaps to astronauts' space stations. And they may work in underwater factories, mines and fish farms.







WANNABE A Diver



This is where your dreams come true. If you have ever wanted to be someone really daring and adventurous or brilliantly clever this is where you can do it. All you need is two photographs and you will see how you look in your chosen career. You will also learn much about the job – the daily tasks, the equipment and even the dangers. So what are you waiting for?

Be what you Wannabe!

Titles in this series:

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Wannabe a Diver

Wannabe a Vet

Wannabe an Explorer



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